Space Weather Forecast

Issued on Wednesday, 28 February 2024 at 12:40 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Ongoing chance of Moderate or Strong flares from the large sunspot in the northwest.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with only common class flares observed. The largest and most significant spot remains int eh northwest. The magnetic structure of the group remains relatively simple. However, there persists the large delta spot within its intermediate spots. This spot also has a large amount of associated flux, increasing the potential for larger flares, should any occur. The other regions are smaller, however two spots in the northeast are both potential sources of activity.

Two coronal mass ejections of note were observed. The first from the south centre disc, due to the filament eruption from around 27/1100 UTC. Analysis of this coronal mass ejection has it missing to the south, with a slight chance of a glancing blow. The Second is from a filament eruption from the southeast of the disk on 28 Feb. Imagery of this eruption is in the process of being analysed.

Solar Wind / Geomagnetic Activity: Solar winds eased after the recent weak coronal hole influence, with a minor enhancement after 28/0600 UTC. Speeds eased from slightly elevated, to background, before increasing to slightly elevated again by the end of the period. Interplanetary magnetic field was weak throughout. The north-south component followed a similar pattern and was mostly weakly negative throughout. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity expected with isolated M-class flares. There remains a slight chance of X-class flares from the large sunspot in the northwest.

Solar Wind / Geomagnetic Activity: The coronal mass ejection from the filament eruption on 27 Feb appears likely to miss to the south with at most only a glancing impact on day 4 (02 Mar). Analysis of a filament eruption from the southeast of the disk on 28 Feb is still underway. Otherwise, no significant enhancements are expected with mainly background winds expected. Geomagnetic activity is likely to remain Quiet with only a chance of isolated Unsettled or Active intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background, but with a chance of rising in response to any notable flares from the large sunspot on the northwest disc. This brings a slight chance of solar radiation storms (S1 or greater).

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	1	1	1	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	60	60	60	60
Very Active	R3 to R5 X	No	20	20	20	20

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	20	20	20	20
Very Active	≥ S3 *	No	5	5	5	5

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.